



Great Lakes



HYDRO-CLIMATE DASHBOARD

The Great Lakes – a massive system of freshwater seas – are home to 40 million people who rely on them as a source of drinking water, recreation, and natural beauty. The water levels of the lakes fluctuate across different time scales. The Great Lakes Hydro-Climate Dashboard was developed as part of the Great Lakes Restoration Initiative by the NOAA Great Lakes Environmental Research Laboratory in partnership with the Cooperative Institute for Limnology and Ecosystem Research (CILER) and the U.S. Army Corps of Engineers, Detroit District to help people understand the relationship between Great Lakes water levels and the primary drivers of their rise and fall.

GOALS

Effectively communicating the Great Lakes water level story is an important part of NOAA's mission to understand and predict changes in climate, weather, oceans, and coasts. The Great Lakes Hydro-Climate Dashboard is an interactive web-based tool that allows comparison of monthly water levels along with both measured and modeled components of the water budget.

FEATURES

- Monthly lake-wide average water levels from 1918 to present
- Master gauge monthly levels from 1860 to present
- Seasonal forecast (1-6 months) from the U.S. Army Corps of Engineers
- Measured precipitation (1950-present) and runoff (1900-present) for each lake basin
- Estimated over-lake evaporation (1950-present)
- Net Basin Supplies (Precip + Runoff – Evap)
- Measured percent ice cover (1973-present)

WEBSITE: <http://www.glerl.noaa.gov/data/hcdb>

Dashboard portal page: <http://www.glerl.noaa.gov/data/dbportal>

Additional water level links:

NOAA GLERL Water Levels website: www.glerl.noaa.gov/data/now/wlevels/levels.html

NOAA/NOS/COOPS station data: www.tidesandcurrents.noaa.gov/map/

Canadian Hydrographic Service station data: www.tides.gc.ca/C&A/gs_selection-eng.html

US Army Corps of Engineers current forecast: <http://www.lre.usace.army.mil/Missions/GreatLakesInformation/GreatLakesWaterLevels/WaterLevelForecast/MonthlyBulletinofGreatLakesWaterLevels.aspx>

Hydro-climate data links:

NOAA/GLERL monthly hydrologic data: http://www.glerl.noaa.gov/ftp/publications/tech_reports/glerl-083/UpdatedFiles/

NOAA/GLERL ice cover website: <http://www.glerl.noaa.gov/data/ice/>



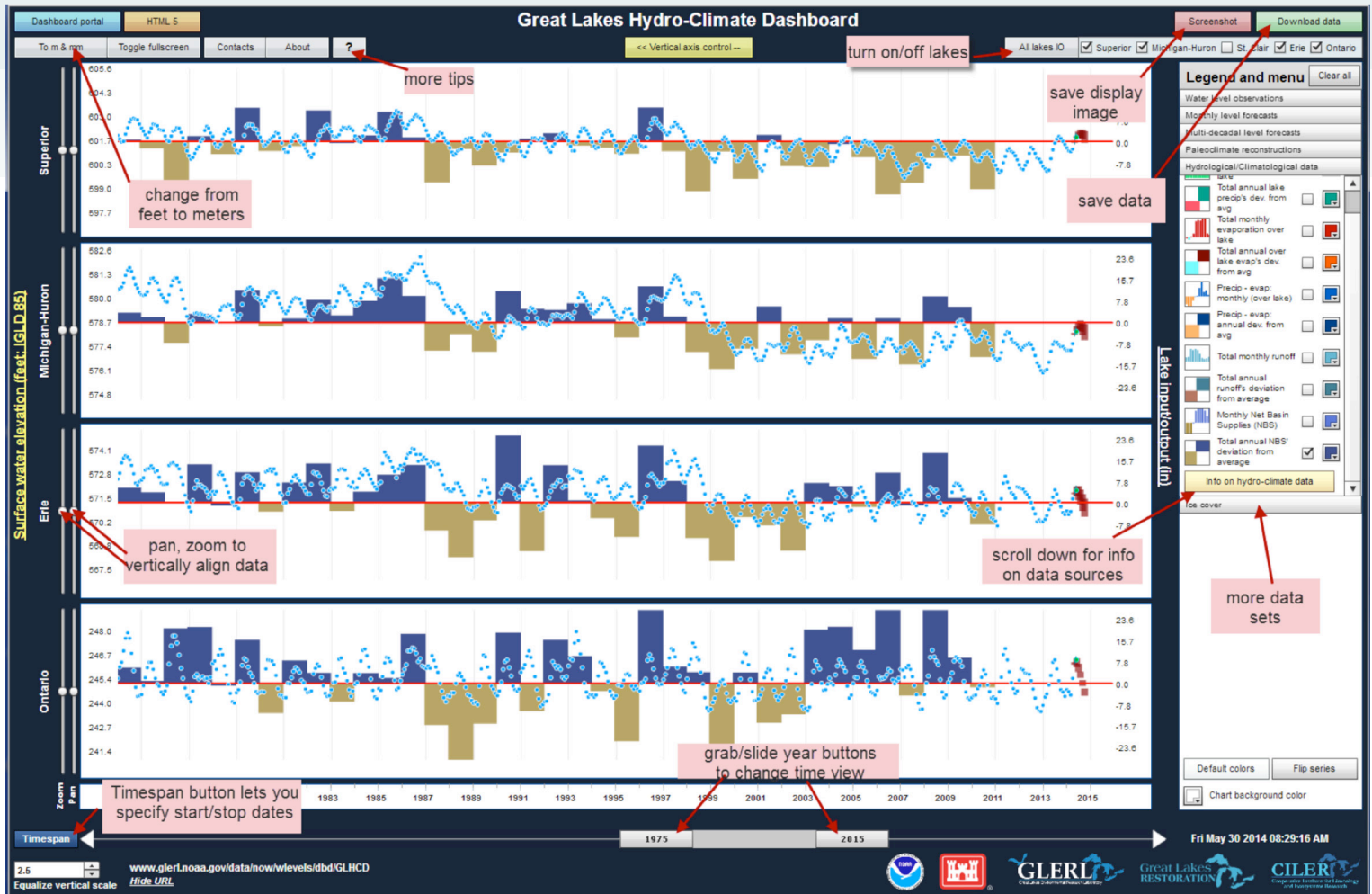
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Visual Tutorial

(how to use the Great Lakes Hydro-Climate Dashboard)



<http://www.glerl.noaa.gov/data/hcdh>

Some interesting data sets to compare using the Great Lakes Hydro-Climate Dashboard:

- Compare water levels to Net Basin Supplies (deviation from average)
- Compare water levels to both over-lake evaporation and precipitation
- Compare water levels to over-lake evaporation and ice cover
- Compare the official U.S. Army Corps of Engineers' 6-month forecast with NOAA/GLERL's research-oriented 10-month forecast

REFERENCE:

Clites, A.H., J.P. Smith, T.S. Hunter, A.D. Gronewold. Visualizing relationships between hydrology, climate, and water level fluctuations on Earth's largest system of lakes. *J. Great Lakes Res.* 40(3):5 pp. (2014).

<http://www.glerl.noaa.gov/pubs/fulltext/2014/20140026.pdf>